ATTACHMENT A
Remarks

Claims 3 and 4 are pending in the present application. By this Amendment, Applicants have amended claim 3. Applicants respectfully submit that the present application is in condition for allowance based on the discussion which follows.

As an initial point, Applicants respectfully submit that this Amendment After Final is proper and should be entered. The amendment to claim 3 is commensurate with prior arguments made distinguishing the claimed invention over the prior art and how the Examiner has interpreted the claims. In addition, the claim amendments do not necessitate more than a cursory review by the Examiner. Therefore, there would be no undue burden for the Examiner to examine claim 3 (currently amended).

Furthermore, the amendment to claim 3 does not raise new issues for consideration and no additional prior art search needs to be conducted, as any previous prior art search would have covered the subject matter now recited in claim 3. This is in accordance with MPEP § 900 which states, in part, that the prior art search should be conducted by the Examiner after obtaining a thorough understanding of the invention disclosed and claimed, including the inventive concept to which the claims appear to be directed. The features now recited in independent claim 3 were disclosed in the application as filed. Therefore, in accordance with MPEP § 900, all elements of the currently pending claims have been searched and considered and, thus, the Amendment does not raise new issues for consideration. Finally, it is respectfully submitted that the amendments to the claims place the application in proper condition for allowance, serve in providing a complete application file history, enhance the clarity

of the prosecution record, and place the application in condition for appeal. Therefore, Applicants respectfully submit that entrance of this Amendment After Final is proper.

Turning now to the subject matter of the outstanding Office Action, claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nyamekye et al. (Circulation 1995; 91:417-425) (hereinafter "Nyamekye") in view of Narciso, Jr. (U.S. Patent No. 5,298,018) (hereinafter "Narciso") and Aizaw et al. (U.S. Patent No. 5,308,861 (hereinafter "Aizaw"). With regard to Narciso, the Examiner maintains that Narciso teaches photodynamic therapy ("PDT") during PTCA to limit restenosis of a blood vessel and alleges that "since Narciso teaches the use of photodynamic therapy during a PTCA procedure, all method steps of the instant claims are also inherently disclosed." Further, the Examiner alleges that since Narciso discloses the use of a laser at a dose of 20 J/cm^2, it would be obvious to use the claimed lower power of 1-10 J/cm^2.

In order to even further distinguish the claimed method from the prior art, including Narciso and Nyamekye, upon entrance of this Amendment, Applicants have amended claim 3 to affirmatively recite achieving a necessary centering of a laser irradiating optical fiber within a vascular lumen of a blood vessel by using a completely inflated balloon catheter. Further, as now recited in claim 3 (currently amended), the completely inflated balloon completely intercepts the bloodstream flow while resulting in and enabling that any blood flow that has been blocked from flowing between the completely inflated balloon wall and the blood vessel at the angioplasty-dilated and injured site does not interfere with or attenuate an irradiating laser light which is to be emitted from the optical fiber during photodynamic therapy. Accordingly, the present

invention is further distinguishable over the prior art, including art cited in the Office Action, which fails to teach or suggest totally intercepting the blood flow during a PDT procedure using a balloon catheter which centers and maintains proper alignment, i.e. continuous centering of the laser emitting optic fiber.

In sharp contrast to the present method, in the prior art, including art cited in the outstanding Office Action, during prior known PDT procedures which use a simple-structure, laser-irradiating, cylindrical optical fiber, complete and steady suppression of restenosis cannot be achieved with success (see present specification, page 8). As long as cylindrical optical fibers are employed for intravascular laser irradiation of an angioplasty-injured site, it is difficult to achieve a necessary centering of the cylindrical optical fiber within the vascular lumen of the blood vessel and, in particular, it is difficult to locate and maintain the longitudinal axis of the cylindrical optical fiber coincidentally with the central axis of the vascular lumen, because the bloodstream flowing around the cylindrical optical fiber moves the optical fiber and continuously changes the position of the optical fiber within the vascular lumen during the intravascular laser irradiation.

It is necessary to have constant centering of the laser irradiating cylindrical optical fiber in order to ensure that the transmission of irradiating laser emitted from the cylindrical optical fiber will not be varied, interfered with or attenuated by bloodstream flowing around the optical fiber within the vascular lumen. Moreover, without having constant centering of a cylindrical optical fiber, the restenosis-inhibiting therapeutic effects of a photoactivated photosensitizing compound present in the blood vessel can be greatly varied and become too insufficient to achieve a consistent, successful

inhibition of restenosis, as desired. For a more complete discussion, please see the present specification, page 16, line 15 to page 19, line 6.

Accordingly, the present method overcomes previously known problems in the prior art by using a fully inflated laser irradiating optical fiber balloon catheter which results in a constant centering of the fiber within the vascular lumen of the blood vessel at the angioplasty-injured site to thereby obtain an even or uniform and sufficient laser irradiation, which is applied to the intravascular blood vessel inner wall, and to irradiate the photosensitizing compound present in the blood vessel wall at the angioplasty-injured site so that restenosis is inhibited successfully and to its full extent. The necessary and constant centering of the laser irradiating optical fiber within the vascular lumen is achieved successfully using the present method via a completely inflated balloon catheter of the device during the PDT procedure, where the bloodstream is intercepted completely due to the completely inflated balloon.

Turning now to the prior art which was the subject of the outstanding Office Action, Narciso fails to disclose a desire to center the laser irradiating optical fiber, let alone a constant centering of the optical fiber which is inserted into the intravascular lumen. Further, Narciso fails to teach or suggest how to center a laser irradiating optical fiber or how to achieve uniform laser irradiating using a cylindrical optical fiber if the optical fiber is not properly aligned within the intravascular lumen.

Furthermore, Narciso clearly discloses in column 9, lines 18-33, using a 1.5 mm catheter with a 2 cm tip, where the catheter diameter creates an annulus of blood flow around the catheter with a thickness of 0.25 mm. Further, Narciso discloses a blood attenuation of 50% of the light power in a 0.25 mm thickness of blood flow around the

catheter so that with a total delivery dose of light of 20 J/cm^2, a total time for the PDT procedure is 50 seconds. Therefore, Narciso fails to teach or suggest complete interception of bloodstream around an intravascularly inserted catheter during the PDT procedure.

Furthermore, contrary to the Examiner's remark that "optimizing the laser wavelengths and density is a matter of routine experimentation," procedural differences between the claimed method and Narciso with regard to blood occlusion, photosensitizing compound administration, and other processing conditions fail to make the claimed laser wavelength and intensity obvious as a matter of routine experimentation. Narciso teaches multiple administrations of a photosensitizing compound over the course of 5-18 days, followed by irradiation at 20 J/cm^2. Nowhere does Narciso suggest one could use one-half the power with its procedure.

In response to the Examiner's statement that the claimed single administration of a photosensitizing compound is anticipated by Narciso, which teaches multiple doses, alleging that the term "comprising" renders the claim open, Applicants respectfully submit that the claimed single administration of a photosensitizing compound is a specific limitation which is not rendered obvious by Narciso. Although claim 3 uses the transitional phrase "comprising," the single administration limitation is in no way taught or suggested by a reference which teaches multiple administration sessions of a photosensitizing compound. Notwithstanding this, and in order to eliminate any doubt, by this Amendment, Applicants have amended claim 3 to use the transitional phrase "consisting of" to further emphasize that the single photosensitizing compound administration is distinguishable from Narciso, which teaches multiple administrations.

Moreover, notwithstanding the current claim amendments, Applicants reiterate the distinguishing features of the previously presented method, as discussed in the Remarks to the September 5, 2006 Amendment, which distinguish the present invention over the prior art which includes:

1. preventing restenosis following a PTCA procedure;

2. specifically locating a balloon catheter at the angioplasty-dilated and injured site during the PDT procedure;

3. timing the PDT treatment 0.5-6 hours after administering a single treatment of a photosensitizing compound; and

4. using a relatively lower laser fluence of 1-10 J/cm^2 in a method of preventing of restenosis.

In sharp contrast to the present method, Narciso teaches the use of PDT following PTCA to lyse plaques and lesions and SMC cells which uses:

1. multiple readministrations of a photosensitizing compound;

2. a relatively higher laser fluence power of 20 J/cm^2; and

3. fails to teach the use of an inflated balloon catheter at an angioplasty-dilated and injured site to completely occlude the blood flow in a treatment to lyse arteriosclerotic lesions or plaques, as well as SCM cells (see, e.g., Remarks, September 5, 2006 Amendment, pages 1-10).

Thus, the present invention is further distinguishable from Narciso which fails to teach or suggest the use of a PDT procedure during the PTCA procedure.

Further to the September 5, 2006 Remarks, it would not have been obvious for one of ordinary skill in the art to fully occlude a blood vessel using a fully inflated balloon

catheter, as the prior art clearly teaches away from such a procedure. Previously cited Honye et al. teaches that the angioplasty-dilated site is subject to dissection, tearing and rupture (see Remarks, page 3, first complete paragraph). Further, U.S. Patent No. 5,766,584 to Edelman et al. (hereinafter "Edelman"), column 1, lines 44-51 discloses that when a balloon that is intravascularly inserted is overinflated, a variety of undesirable results occur, such as rupture of the tunica intima of the blood vessel. Therefore, one of ordinary skill in the art would not be motivated to use a completely inflated balloon and, in fact, would be taught away from using a completely inflated balloon during the PDT procedure in a post-angioplasty treatment. Therefore, contrary to the Examiner's assertion, it would not have been obvious to use a fully inflated balloon which fully occludes a blood vessel.

In complete contrast to the teachings of Honye and Edelman, in the present method, a portion or region of the blood vessel at the angioplasty-injured site is kept in tight contact with a completely inflated balloon, which has been inserted within the vascular lumen, resulting in the lumen being distended. Further, the vascular lumen is distended when being irradiated using laser light during the PDT procedure, which results in obtaining the effect of increasing the cross-sectional area of the vascular lumen as previously discussed on page 7, in the third complete paragraph to page 8, first complete paragraph of the Remarks section of the September 5, 2006 Amendment. Accordingly, the present procedure is completely unpredictable and non-obvious in view of the disclosure of Narciso.

With regard to Nyamekye, this reference teaches that when the PDT procedure, using the ALA-PPIX sensitizer, is applied at the same time as the angioplasty, the

experimental intimal hyperplasia development, namely the restenosis in the blood vessel, can be inhibited in rats.

Based on the individual and divergent teachings of Narciso and Nyamekye, one of ordinary skill in the art would not be motivated to develop a method which makes the present invention obvious. Based on the foregoing, Applicants respectfully submit that claims 3 and 4 are not obvious in view of the prior art of record.

In view of the foregoing, Applicants respectfully submit that the present application is in condition for allowance.

END REMARKS